

U. S. DEPARTMENT OF AGRICULTURE
BUREAU OF BIOLOGICAL SURVEY

Form Bi-689

FIELD DIARY

Mr. E. A. Goldman

(Official title.)

Period, May 16 to June 12, 1924 (End)

Montana (Gallatin), Y.N.P.
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May 16, 1924,
Left Washington, D.C. for
Missoula, Mont. 3.30 P.M.

May 17-19, ^{Mont} Missoula,
En route to Missoula, Mont.
arrived Missoula 10.30 am
May 19. Conferred with
District Forester Fred A.
Marrell and Mr. A.A.
Simpson of the Grazing
Section.

May 20. ^{Mont} Moise,
Left Missoula at 8 A.M.
and arrived Moise at
9.56 A.M. Frank H. Rose
the warden of National
Bison Range had a warm
meet me and I was taken

May 20 con
by auto to the Range headquarters
about half a mile away.
Found Mr. Rose had
recently been injured by
a runaway team and
was just able to be out
of bed.

In afternoon we drove
to where the buffaloes
were being fed in an
inclosure and later visited
parts of the Range.

Bubo. One alighted shortly
before dark on a post near
the Nat. Bison Range headquarters.

Marmota. One seen in
the grass on an otherwise
open hill slope where it
ran into its hole.

Anas boschas. Several
seen along Mission Creek

near Range headquarters.
Evidently breeding.

Odocoileus hemionus. Three
does were seen ⁱⁿ among the
a thicket of wild rose
and Symphoricarpos
bushes along Mission Creek
near Range headquarters.

May 21 Moise (National
Bison Range), Mont. day.

Spent nearly entire with
Frank H. Ross riding over
Range. Much of the higher
part was covered and
special attention was given
to the possibility of capturing
elk for restocking purposes.

Elk. Range at this
season as in winter when

May 21 con.

weather is not too severe
at the higher elevations.
The bulls and cows are
in separate groups. In one
 bunch of cows I counted
27 together and many
were seen in smaller
scattered groups. Bucks
were seen in small
groups - 3 or 4 to 6 or 8
together. During the middle
of the day, which was quite
warm, a number of elk
were seen feeding in the
open just outside the
Douglas fir timber near
tops of hills, while some
others were lying in the
shade under the trees.
Owing to ~~depleted~~ diminishing

May 21 con.
Forage it is evidently
necessary to reduce the
number of elk now believed
to be about 500.

Elk trapping. The warden,
Frank H. Rose has given
considerable attention to
plans for trapping elk for
restocking purposes. The
problem is to capture the
elk where they can be
~~delivered~~ crated for delivery.
There are certain places
where they pass or to
which they can probably
be enticed where corrals
can be built with fences
extending away as wings.
From these corrals a line
would conduct the elk

out of the ^{may 21 am} hills where
they would be loaded
through a chute at the
point now being used
as a buffalo feeding
ground. In order to do this
it would be necessary to
construct a trap corral
with division fences extending
from it to the borders of
the game preserve in order
to conduct the elk to
the trap and a lane
extending to present buffalo
corral where a chute is
to be built. This would
involve the construction of
about 4 miles of high fence
@ about \$3000 per mile and
about 7 miles of lower fence
@ \$2000 per mile the total

May 21 con.
estimated cost of the
project being therefore
\$26000. Other Division funds
are needed in order to
enable the grazing to be
handled to best advantage,
but this construction is
most urgent in order to
carry out the plans for
stock disposal.

Buffalo. About 400 head of
buffalo are being fed hay
in order to allow the over-
grazed range to recover. They
are held meanwhile in two
large corrals from which
they are interchanged each
time hay is scattered for
them. They appear to be
contented but the cows are

May 21 con.

having their calves within
the enclosures, over 50 calves
have been born in the
corrals to date. About 180
~~of the~~ buffaloes remain on the outside,
and there all told at least
60 calves so that the total
number of buffaloes is now
well over 600. Buffaloes to be fed
about 3 months.

Range conditions. The con-
finement of most of the
buffaloes in the corrals
since about Apr. 1st has
enabled the forage to get a
start and a number of grasses
are now seeding. But owing
to the dryness of the
season the improvement in
the range through relief
afforded is much less than

May 21 con.

it would be in a normal season. On the other hand if this relief had not been afforded the further deterioration of the range would probably have been serious. While there is considerable grass in evidence on the ground Rose pointed out that it is the more palatable types that have suffered. The less palatable species are said to be avoided in the summer but are grazed in the winter when owing to scarcity of forage elk and buffaloes are forced to feed upon them. Near the tops of some of the hills a number of

May 21 con.
young Douglas firs have
been killed by elk rubbing
them with their antlers.
This is rather serious as
cover is needed and reproduction
of these conifers is scanty.

Odocoileus (Whitetail). No
whitetailed deer were seen
by me, but about 20 are
estimated. They are confined to
the cottonwood alder ^{and} willow
timber and brush mainly along
Mission Creek.

Odocoileus (Blacktail). These
deer range ^{in the timber} mainly on the
tops of the hills, but a few
also seen in the brush
along Mission Creek where
I saw several does that had
been fed near headquarters.

May 21 con.

and were rather tame. Two were seen feeding upon wild rose bushes, and they may feed upon a *Symphoricarpos* which grows abundantly. About 60 are estimated to occur on the range.

Castor. Brown cutting was seen along Mission Creek where 60 are estimated to occur.

Deer. About 20 mountain sheep are believed to occur although not all of them have been seen recently.

Game birds. Sharp-tailed grouse, blue grouse, Hungarian partridges said to occur in numbers and ring-necked pheasants are common. A

May 21 con.

Pair of pheasants was seen near headquarters.

Anas boschas. Common breeding species along Mission Creek. A female with several small young was seen today. She flapped up the stream attempting to attract our attention while the young were scattering and hiding.

Pipilo maculatus. Common in thickets at higher elevations.

Sturnella m. neglecta. Abundant.

Tyrannus verticalis. Common.

Spizella socialis. Chipping sparrows ~~are common in the~~ were noted several times in thickets at the higher elevations.

Pica. Common. A nest containing about 7 eggs found in a nest of Douglas fir contained 7 partly hatched eggs.

May 22 (Thurs.) Moise
to Missoula, Mont.

Made trip by auto in
morning entirely around
National Bison Range. In
afternoon was taken by auto
to Dixon by Frank Rose and
there caught train at 3.28
for Missoula.

Trip around the Range
afforded a clear idea of its
isolation as a high area
eminently fitted for use as
a game range.

Deer. The mountain sheep
of which there are believed
to be about 20 on the Range
occupy several of the lower
ridges in the southeastern
part of the Range not far
from the town of Ravalli,
(cont.)

May 22 con

these ridges ~~are~~ have generally rounded and unbroken contours, but rather low rock ledges occur in places. The rams and ewes are usually seen in separate bunches. Today we saw from the highway a group of 7 rams - 5 large ones and 2 about 3 years old most of them lying down on a hillside within 100 yards of the Range fence. Weather was cloudy and threatening and light conditions therefore unfavorable but I was able to approach to within about 30 yards and attempt several snap shots pictures before they moved off up

the hill, and even then they showed no signs of real alarm. Apparently they were attracted by some fresh green feed at the foot of the ~~high~~ hill where they also found a comfortable bedding ground. They were evidently in good condition.

May 23 (Fri.) Missoula, ^{Mont.}

Learned at Forest headquarters that Mr. Marcell had gone out on a trip and that Glen A. Smith is expected in on Sunday, so will wait for him meanwhile studying records in Forest office.

May 24 (Sat.) Missoula, ^{Mont.}

Spent day going over elk records in Forest office.

May 25 (Sun.) to
May 28th (Wed.), Missoula, Mont.
Spent this period waiting for
Glen A. Smith and going over
Forest Service elk records.

Smith arrived in afternoon
and we discussed general
plans.

May 29th (Thurs) Missoula.
Working over elk records, and
discussing elk problem and
general game matters.

May 30 (Fri.) Missoula.
Decoration Day - a beautiful day
clear after a cold rain but
mountains appearing through
a thick haze probably due to
fires that have been burning
west of here. Met. M. J. Elrod
on bridge and we talked
there for considerable time.

May 31 (Sat.) Missoula,
Mont. Working over elk records.

June 1st (Sun) Missoula.
Made a trip with Glen A.
Smith and family up Bitterroot
Valley to to beyond small
town called Polson about
26 miles and back - a beautiful
drive.

June 2 (Mon.)
Preparations for trip over
National Forests and Yellowstone
Park. Left Missoula with
Glen A. Smith 5.55 P.M.

June 3 (Tue.) Yellow-
stone Park. Reached Livingston
2.05 A.M. where we went
to bed and this morning
left Livingston at 8 A.M. &
arriving Gardiner about
11 A.M. where M. H. M.

Albright met us and took us to Park headquarters by auto. We met Mr. Jakwerbs, State Game Warden at Livingston and he joined us for a conference occupying most of afternoon with Mr. Albright.

June 4 (Wed.) ^{Mont} Bozeman, Mr. Albright took up for a trip by auto up to near Mt. Washburn which gave us a very good idea of forage conditions ^{and} of game in that part of the Park.

Snow has melted up the slopes well back to near the top of such mountains as Mt. Washburn and the elk have

drifted well back into the mountains.

Elk. Two ^{cows} were seen near headquarters last night, but nearly all are well back in the mountains. One cow was seen with a young calf. Cows were seen in a number of bunches up to 25 together and all appeared to be in good condition.

Antelope. A few were seen singly or two or three together at several points along the way. In

Deer. A few seen in the timber along the road. In one place three young bucks with horns about 5 inches long.

Bears. Six black bears were
seen - 2 of which were in
the brown pelage and 4 coal
black. One of these was in
the timber and the others
were in the open grassy
country well up toward
Mt. Washburn where they
were probably feeding upon
roots - at any rate they
were in plain view in the
open grass country.

Left Gardiner about 2.30
PM and reached Livingston
about 5.15 PM. There Mr.
Clack Forest Supervisor met
~~us~~ with a car and ~~took~~
^{brought} us where we arrived
about 6.45 PM.

June 5 (Thurs.), Leimann R.R.,
Gallatin National Forest.

Left Bozeman 10 a.m. by auto
and followed main road up
Gallatin Valley to Leimann, R.S.
distance about 60 miles.

Route is across nearly level
valley bottom and thence
enters the narrow, beautiful
Gallatin river canyon. In
this canyon numerous areas
are being developed for
recreation purposes.

Elk. Ranger's report is that
elk drifted out of the Park 5 or
6 days later this year and
the 1st drift was smaller.
There was possibly only 100
head of elk in the hunting
area at the close of the
season. A few cows calved.

June 5 con.
on Porcupine Cr. A calf was
seen June 1.

Elk casualties. About 350 hunters
hunted in the game area during
season. 57 head are known
to have been killed locally
during 1923 ^{hunting} season. 53 died
of natural causes - 5 bulls, 4 cows,
1 spike and 28 calves on various
ranges and 15 bulls and cows died
on Porcupine alone. Cause of
death of part of cows and bulls
old age, but loss of calves
unexplained. All were very
heavily infested with ticks.
This was apparently an unusual
loss from natural causes. (Above
is from Denver White's Rep. for
Patrol 1923-24).

alk count (From Ranger White's Rep. 1923-24)

(Gallatin). Bulls inc. some spikes.		Cows.	Calves.
Dec.	94	571	181
Jan	47	1002	284
Feb.	60	518	230
Mar.	121	401	255
Apr.	49	371	142
	371	2863	1092

About 8.5% Bulls.

∴ 4 cows to every calf (this includes a number of yearling cows).

Set Snow Pans in the Park
and to cut ^{up} 5 mi. beyond Gallatin
Sta. 29 90 one end of 21.
14 - 1 - 8 - 2 - 1 - 11

June 6 (Fri.). Taylor Park.
Left Linnaman R.S. and camped
on Taylor Park at an old
cattle headquarters.

Route was up Linnaman Cr.
to top of divide near head
of Bush Creek, then along
ridge westerly and over
into Taylor Park drainage.

Forage conditions. Forage
impressed me as wonderfully
and the Taylor Park
drainage seems to be having
great possibilities as a
winter range as it includes
so much open, grass
country, little marshy places
and undulating hills
presenting slopes facing in
nearly all directions. Even

June 6 con.

areas grazed by sheep ~~are~~
bear much forage that
would be available for elk.
Certain warm or windswept
slopes show, however, con-
siderable winter utilization
by elk. Willows were tipped
in places and there has
been recent browsing by elk
of Chrysothamnus bushes.
Sage brush does not appear
to have been touched.

Elk. A few cows seen
in the Taylor Fork drainage.
Half a dozen were seen
by us today in several
places. Three were seen
together, and fresh tracks
were seen in a number
of places. Mr. Sawyer

June 6, 1901.

Park Naturalist, joined us this evening. He reported seeing 90 head of elk along the way today between Snow Pass and a point 5 miles beyond Gallatin R.S.

Weather, Threatening all day and finally turning in late afternoon to a steady rain mixed with snow!

June 7 (Sat.) Kinnaman R.S.

Left Taylor Fork cabin about 10 A.M. and travelled about 20 miles, arriving here about 5.30 P.M.

Route was up South Fork of Taylor and across the ridge to Sage Lk. down which we came to the Gallatin which

June 7 con.

was followed down to the
R.S. A fine body of winter
seek range lies in the S.
Fork drainage consisting
like much of the Payson
drainage in general of
sloping meadows with all
angles of exposure, well
grassed and largely covered
with sagebrush. There are
many openings or small marshy
~~low-lying depressions~~
also well up on the side
hills in which there are
clumps of willows evidently
utilized, but the utilization
is slight only some of the
twigs tips of twigs being
taken apparently indicating
plenty of forage. A few
of the warmer slopes are

June 7 con.

rather heavily grazed by elk as shown by the forage and the fires left on the ground. *Leucoschammus* bushes that had been cut for perhaps $\frac{1}{3}$ their height or $33\frac{1}{3}\%$ were noted on some of the warmer slopes on S. Fork of Taylor. Timber is confined to the upper slopes of the ridges in the basin. In the timber forage for elk is apparently scanty. Sage Creek flows through a narrow valley with steep mainly timbered slopes of limited value for elk.

Elk. Four cows were seen and tracks of 2 other elk, all on S. Fork drainage. Two of

these were feeding in a little meadow just at the edge of the timber about 11 A.M.

The only carcass we have seen was of a very old cow on Cinnamon Creek day before yesterday not far from Cinnamon R.S.

June 8 (Sun), Buffalo Horn R.S.

Left Cinnamon R.S. about 9.30 A.M. and reached here about 5 P.M. Dist. tra. about 20 miles.

Route was down Gallatin River to Twinkleskin Creek perhaps 2 miles above the mouth of Porcupine Cr. and thence across the divide to

Porcupine Creek Valley up which we rode for a few miles and then turned south easterly

June 8 con

across the heads of several canyons
& ~~the~~ Buffalohorn Creek down
which we came to this place
about 3 miles about the mouth.
It snowed most of the day
and made riding through
the woods, especially where
there was considerable
fallen timber rather tedious.

Forage. Excellent forage
conditions were found in
crossing the divide from
Twinleabin Cr. to Parcupine
Creek and over a wide area
along both slopes of that
creek. Most of the best forage
is in areas generally overgrown
with sage brush together with
a good growth of grass, and
willows in the bottoms. In
the Parcupine drainage, while

June 8 con.

there is an abundance of grass it seems evident that the elk are fond of willow and aspen twigs as these are bitten off in many places and I was surprised to find that some bark was even eaten from aspens ^{3/4} five or 6 inches in diameter. Much more complete utilization than we saw of willow and aspen in Parker's drainage would be very seriously injurious to this class of forage and even now some damage is done. We also noted rose-bushes and several other shrubs that had been browsed. In the Buffalo Horn drainage

June 8 con.

we found extensive willow bottoms that had been much browsed by elk a year ago, but comparatively little browsing this last winter and this was due evidently to the much smaller number of elk present last winter.

Elk. A few tracks only were seen today in the snow at various points on the ridges between

Parcupine and Buffaloham.

Parcupine. Three seen on the ground in places where the snow had melted off.

Moose. A very few are said to occur in Buffaloham drainage.

June 9 (Mon.) Buffalo Horn ^{Park Sta.} R.R.

Made a round trip today through Buffalo Horn ~~Park~~ drainage up to top of pass overlooking Tom Miner Basin and followed ~~eastward~~ along the top of ridge to a point where owing to depth of snow we were obliged to return. Return trip was made via Fish Lakes which are formed in a section of slope which is sliding as shown by disturbed surface. The surface is very uneven, rocks projecting in places and trees uprooted, but in the main the forest is carried along on the slide, the earth movement being evidently slow. Returned to cabin in afternoon. Mr. E. J. Sawyer, the Park Naturalist accompanied us. Weather has cleared

June 9 con.

Forage. Trip today was up through rather open forest in which there is considerable feed evidently utilized by elk; and many little marshy meadows which form small openings in the timber and these produce considerable grass and herbaceous forage, with extensive patches of willows near and in the water. Most of the willows showed evidence of having been browsed a year ago. The tips of the willows were, in most cases only a few inches long showing the the growth is rather small. Apparently there are three

June 9 am.

species of willows all of which are browsed. Some browsing was recent, but as already indicated most of it was done a year ago or longer. Some aspen patches noted, today. Had seen many seriously injured by elk, and there is little reproduction. The little aspens are better off 2 or 3 ft. from the ground and it is difficult to see how under present conditions any of these could grow to large size, or even get ^{them tops} beyond the reach of elk. Trees of all sizes up to 8 or 10 inches in diameter are many of them badly

June 9 am,
scarred and many have
been killed by elk. Most
of the scars are evidently
made by the lower incisors
of the elk. Pushing upward
a piece of bark is torn
off at the top. The
Buffalohorn drainage is
evidently a very important
part of the elk range.

Elk. No elk were noted
but fresh tracks were
seen in a number of places
all the way from the
vicinity of the cabin to
the top of the divide
overlooking Tom Miner
Basin. Some of the tracks
were in the recent
snow. Near the cabin they

June 9 am.
range through the bottoms
among the willows and
also in the timber on the
slopes.

beaver. Three beavers were
seen in late afternoon feeding
upon willows within a few
hundred yards of the cabin.
Here they cut small
willows, in most cases
not exceeding half an
inch in diameter and not
over 4 ft. high the majority
even smaller. One was
watched using its forefeet
much as a squirrel does
and biting off willow twigs
of very small size. The
beavers make small dams,
runways and slides on

June 9 con.
the flat near the cabin,
Cerritos. One was seen
today, like those noted
yesterday, ranging out over
bare open ground.

Perisoreus, I saw several.

Tyrannus. A good view
was obtained of an
eastern kingbird in
Gallatin Valley near
Bozeman, June 5th.

Spizella soc. Numbers
of chipping sparrows were
seen in the edges of
timber bordering meadows.

Buteo b. calurus. One
seen in timber about ~~the~~
~~up~~ miles on Buffalo Horn
Ck. about three miles
above Buffalo Horn Patrol Sta.

Triaba ~~actica~~ curvicauda
common and generally
distributed.

June 10 (Tue.) Daly bk. Patrol
Sta.

Off about 9 A.M.; arrived
Patrol Sta. about 3 PM

Route from Buffalohorn
Patrol Sta. up to top of divide
on Game Preserve line ~~there~~
around upper part of Daly
bk. drainage and down the
the cabin located in a
sheltered noon well up out
of the bottom.

Parage. From the game
preserve line we traversed
an area in which there
has been evidently great

June 10 con.

utilization of forage than
any section we have visited
and elk appear to have
been more generally dis-
tributed. The Daly Creek
drainage within the Game
Preserve is evidently an
important elk range. Warm
slopes are rather fully
utilized and there is evidently
much grazing in the timber.
In many places it was
noted that the dwarf
huckleberry that grows so
abundantly was utilized
by elk. Willows rather fully
mowed, but much of the
browsing dating from a year
ago.

Elk. Fresh tracks noted in
small numbers in many places.

June 10 con.

Both in the open and in the
timber. Nine elk were seen
together in ~~the~~ a small opening
near the edge of the timber
in the upper part of Poly-
lek valley. Carcasses of elk
were seen of animals that
had not been dead so
very long - perhaps a month.
One was of a bull apparently
~~in the pen~~ in the prime of
life although ~~his horns were~~ ^{his horns were} ~~small~~
small. Evidently he had
carried his horns until late
in the season. One had been
shed elsewhere and the
remaining horn was
detached from the skull and
lying with the carcass. The
other elk found was a year-
ling, last molar not in place.

June 11 (Wed.) Gallatin, R.S.,
Gel. Nat. Park.

Left Daly Patrol Sta. about
8.30 a.m. and arrived here
about 1 P.M.

Route was up to top of
ridge between Daly Cr. and
Specimen Cr., thence down
that Cr. to Gallatin River
and on to this place located
about a mile below the
mouth of Specimen Cr. General
route was over that followed
by elk in migration from
the Park to the Gallatin
country.

Forage. Considerable use
of forage of most kinds was
noted all along the way,
except that the willows

June 11 con.

were not heavily browsed
this last winter. As in the
country traversed day before
yesterday most of the willow
browsing evidently dated
from the year before. It
has been evidently fairly
heavy in some former
years. A part of the area,
covered today, was open,
grassy but fairly steep.
Slopes and part of it is
timbered with spruce and
lodgepole pine. In much
of the timber there is an
abundant growth of dwarf
huckleberry which has been
fed upon very recently.
As yesterday I noted that

June 11 con.

convinced we had been
made of exposed slopes,
particularly the upper
parts where there ~~are~~
often lie just below snow
bank in the winter. In
most ^{such} places the snow is
now gone, or is going
rapidly, and the line bet-
ween the winter snow bank
and elk grazed area below
can plainly be seen. Much
dead grass often remains
where the snow laid while
the old forage is gone
where the elk grazed.
In a few places sage brush
had been cropped where
there was abundant
grass all about; and in

June 11 am.

some places the grass was closely cropped about the bases of sage brush clumps, apparently indicating that elk had grazed down through the snow in such places, the snow of course being light or easily penetrated beside sage clumps.

Elk 8 head, apparently all bulls were seen on the Specimen bk. side of the ridge crossed from Daly Creek today. Two were seen in one place and six in another. Of the two one was apparently still mainly in winter coat as with the glasses I was able to see them very clearly at

June 11 con.

a distance of about 250 yards. It appeared very ragged. The other was evidently assuming the summer coat as its sides were brown, but still flecked with little patches of the faded whitish winter pelage. The six seen were all in the winter coat still, with very white sides which made them conspicuous at considerable distance. Many game trails across the ridge were seen, some worn several inches deep in the soil. These trails lead down to Spicium Creek and straight across

June 11 con.

to the Park side of the stream. It seems clear from conditions noted that elk remain for considerable time in the Game Preserve and on the pass way we crossed today. In numbers of places they had been feeding and lying down in the timber. Many tracks some fresh were seen, and most of them were leading toward the ~~game~~ Park. The general movement of elk is across the ridge on the Game Preserve east of the Gallatin River.

(Thurs.)

June 12, Gallatin Sta. Yel.
Nat. Park.

Off at 7.35 A.M. Rode up
Specimen Lk. to upper part of
watershed and then crossed to
Fan Lk. drainage and descended
that stream to Gallatin River
and thence down to this
station again where we
arrived about 4 P.M. Day
mainly clear and comfortably
warm.

Specimen Lk. flows through
a narrow, timbered canyon,
but Fan Lk. ~~is~~ has a broader
bottom covered mainly with
willow thickets and these
form nearly continuous beaver
meadows for miles along the
stream. In the timber along
forage

June 12 con.

Spawning bk. there is an abundant growth of dwarf huckleberry, and in places willow thickets and aquatic vegetation along the stream. Along the various streams that unite to form Fan Creek are broad grassy flats with a varied assortment of feed. The area traversed today is summer range for the elk moderate utilization of grass was noted in many places. The numerous willow thickets are very little browsed in summer. ~~and~~ In some places they did not appear now to have been touched, but in others the tips of branches have been cropped in the past and many of them a year ago.

Leave 11:00 am - S. to Glen

Go to Glen Canyon Ranger Sta. 9 mi

9 mi. to 11:00 - N. 20 mi. to Glen

Leave Glen Canyon at 10:00 am

6-12 mi. to Glen

13-17 mi. to Glen

18-19 mi. to Glen

20-27 mi. to Glen

UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF BIOLOGICAL SURVEY.
WASHINGTON.

OFFICIAL BUSINESS.

PENALTY FOR PRIVATE USE
TO AVOID PAYMENT OF
POSTAGE, \$300.

U. S. Department of Agriculture,

Washington, D. C.

8-4043

Bureau of Biological Survey.

~~Bull 2.~~

- ~~1. Buffalo feed ~~from~~ canal,
10 A.M. - 32 - 2. May 21~~
- ~~2. Buffalo feed canal, 32 - 2,
10.30 A.M. May 21~~
- ~~3. Same but 16 - 1/50~~
- ~~4. 6 Buffalo on range. 1/50 -
16 top - 12 M. May 21~~

Conspicuous telagae,
Minnesota. Waukegan
Buffalo cow not at
Ledy Park.